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10/598,373	12/27/2006	Stanley Shigezo Swallow	78104114 - KE/GM/N19082	3270
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Intellectual Property Dept. Dewitt Ross & Stevens SC 2 East Mifflin Street Suite 600 Madison, WI 53703-2865			CHOI, PETER Y	
			ART UNIT	PAPER NUMBER
			1786	
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			03/15/2012	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/598,373	<b>Applicant(s)</b> SWALLOW ET AL.	
	<b>Examiner</b> Peter Y. Choi	<b>Art Unit</b> 1786	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2012.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1,8,9,15,20,27-38,41 and 42 is/are pending in the application.
- 5a) Of the above claim(s) 27 and 36 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1,8,9,15,20,28-35,37,38,41 and 42 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 05 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on January 9, 2012, has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 8, 9, 15, 20, 28-35, 37, 38, 41, and 42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1, 8, 9, 15, 20, 28-35, 37, 38, 41, and 42, claim 1 recites that the fabric lacks electrically conductive filaments or fibres which are spaced apart and also biasable into conductive contact with each other, and claims 30 recites that the fabric lacks any crossover points at which conductive elements are spaced apart while being biasable into conductive relationship. Any negative limitation or exclusionary proviso must have basis in the original

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disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. Applicants' specification, as originally filed, does not provide support for the claimed limitations.

Regarding claim 38, the claim recites that the conductive path includes interdigitated subpaths nonconductively isolated from each other. Applicants' specification, as originally filed, does not provide support for the claimed limitation.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 8, 9, 15, 20, 28-35, 37, 38, 41, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 8, 9, 15, 20, 28-35, 37, 38, 41, and 42, claim 1 recites that the fabric *consists of* at least one instance of a crossover point at which the first and second electrically conductive filaments or fibres are permanently biased apart and at least one instance of a crossover point at which said corresponding first and second electrical conductors are permanently physically connected together, with the fabric lacking electrically conductive filaments or fibres which are spaced apart and also biasable into conductive contact with each other (emphasis added). Additionally, claim 30 recites that the fabric *consists of* one or more crossover points at which the first and second electrically conductive elements are permanently biased apart, the permanent biasing being effected by warp and/or weft floats of the first and/or second electrically conductive elements over or under more than one of the elongated insulating

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elements, and one or more crossover points at which the first and second electrically conductive elements are permanently in conductive communication, the permanent conductive communication being effected by a plain weave in the warp and weft at the crossover point, with the fabric lacking any crossover points at which conductive elements are spaced apart while being biasable into conductive relationship (emphasis added). The transitional phrase “consisting of” excludes any element or ingredient not specified in the claim. *In re Gray*, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948). When the phrase “consists of” appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole. *Mannesmann Demag Corp. v. Engineered Metal Products Co.*, 793 F.2d 1279, 230 USPQ 45 (Fed. Cir. 1986). The claims appear to limit the fabric to consisting of at least one crossover point as claimed. However, the claims are indefinite, as it is unclear how the fabric may consist of only one or more crossover points of conductive elements, whereas the claimed fabric additionally necessarily includes insulating elements.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 8, 9, 20, 28-32, 34, 35, 37, 38, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swallow in view of US Pub. No. 2001/0006173 to Rock.

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Regarding claim 1, Swallow teaches a fabric having a woven construction, including in its woven construction a plurality of spaced first elongated electrically conductive filaments or fibers and a plurality of spaced second elongated electrically conductive filaments or fibers, the first elongated electrically conductive filaments or fibers being crossed by the second elongated electrically conductive filaments or fibers at a plurality of crossover points (Swallow, Abstract, paragraph 0005), wherein the fabric includes a warp and a weft, the warp including at least one of the first electrically conductive filaments or fibers and the weft including at least one of the second electrically conductive filaments or fibers (Id., paragraphs 0007, 0011), wherein the fabric includes insulating fibers or filaments which bias the first and second electrically conductive filaments or fibers apart at a crossover point (Id., paragraph 0011), wherein the woven construction includes yarn and the first and/or second electrically conductive filaments or fibers include warp and/or weft floats over or under more than one yarn to effect the biasing apart of first and second electrically conductive filaments or fibers at a crossover point (Id., paragraph 0042), wherein the fabric includes at least one instance of a crossover point at which the first and second electrically conductive filaments or fibers are permanently biased apart and at least one instance of a crossover point at which the corresponding first and second electrical conductors are permanently physically connected together (Id., paragraph 0073), wherein the one or more crossover points at which the corresponding first and second electrically conductive filaments or fibers are permanently physically connected together are effected by means of a plain weave structure local to the crossover point (Id.), wherein the permanently connected crossover points and the permanently biased apart crossover points bring into being at least one conductive path within the fabric that is composed of two or more contiguous segments of two or

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more electrically conductive filaments or fibers (Id., Figures 10 and 12; *see additionally* paragraphs 0001-0004, 0006, 0008-0010, 0035-0041, 0043, 0060-0072, 0076-0092, claims 1-16, Figures 1-9 and 11).

Regarding claim 30, Swallow teaches a fabric having a woven construction with a warp and a weft, the fabric including several spaced elongated first electrically conductive elements included in the warp of the fabric, several spaced elongated second electrically conductive elements included in the weft of the fabric, and crossing the first electrically conductive elements at several crossover points (Swallow, paragraphs 0006, 0007), and elongated insulating elements in the warp and/or weft of the fabric (Id., paragraph 0011), wherein the fabric includes one or more crossover points at which the first and second electrically conductive elements are permanently biased apart (Id., paragraphs 0005, 0011, 0012), the permanent biasing being effected by warp and/or weft floats of the first and/or second electrically conductive elements over or under more than one of the elongated insulating elements (Id., paragraphs 0008, 0012, 0042), and one or more crossover points at which the first and second electrically conductive elements are permanently in conductive communication (Id., paragraph 0073), the permanent conductive communication being effected by a plain weave in the warp and weft at the crossover point (Id.), wherein the permanently biased apart crossover points and the crossover points in permanent conductive communication generate at least one conductive path within the fabric that includes two or more contiguous segments of two or more of the electrically conductive elements (Id., Figures 10 and 12; *see additionally* paragraphs 0001-0004, 0006, 0008-0010, 0035-0041, 0043, 0060-0072, 0076-0092, claims 1-16, Figures 1-9 and 11).

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Regarding the limitations such that the fabric lacks electrically conductive filaments or fibers which are spaced apart and also biasable into conductive contact with each other or in conductive relationship, it should be noted that the fabric of Swallow is substantially similar to the claimed invention (*see for example* Swallow, Figures 3 and 4; Applicants' specification, Figures 1 and 2A-2C). Since the invention of Swallow comprises a substantially similar structure and composition as the claimed invention, and since Applicants' specification does not further clarify the scope of the claim, Swallow appears to anticipate the claimed invention.

Swallow appears to teach that the continuous segments of electrically conductive filaments or fibers have a length and/or number and/or arrangement and/or linear resistance chosen so as to constitute one or more resultant conductive paths that conform to a desired geometry, such that a desired resistance can be generated within a selected area and shape of the woven fabric from electrically conductive filaments or fibers having a limited range of available yarn conductivities, and that the contiguous segments together having one or more of a length, a number, an arrangement, and/or a linear resistivity, with the conductive paths providing a desired geometry, such that a desired resistance can be generated within a selected area and shape of the woven fabric from electrically conductive filaments or fibers having a limited range of available yarn conductivities (*see for example* Swallow, paragraphs 0009, 0037, 0076-0092, Figures 10-12). Additionally, Swallow teaches and suggests that the invention of Swallow can provide a conductive textile for a pressure sensor or switch or other conductive device within a single layer of fabric (Swallow, paragraph 0014), such as a circuit (Id., paragraph 0074), as the objective of the invention is to incorporate multiple conductive and insulating properties into a single fabric



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sheet. Additionally, Swallow teaches that the electrical conductors have an electrical resistance property (Id., paragraph 0009).

Rock teaches an electric resistance heating/warming composite fabric article comprising conductive yarn mounted upon a layer of fabric (Rock, Abstract). Rock teaches that the fabric may be woven (Id., paragraph 0020). Rock teaches that the number of conductive filaments, and where the filaments are located, are dependent on the end use requirements (Id., paragraphs 0023, 0025, 0028). Rock teaches that the heating or warming of the circuit can be effected by concentrating a relatively greater length of conductive material in a tortuous, zigzag, and/or interlocking spiral pattern (Id., paragraph 0036), or arranging the conductive material in parallel to conductive buses (Id., paragraph 0041, Figure 16).

It is reasonable for one of ordinary skill in the art to expect that various conductive textiles would comprise various configurations taking advantage of the structure of Swallow. For example, pressure sensors would incorporate electrically conductive filaments or fibers which may connect upon the application of the desired pressure, whereas conductive devices not used in pressure sensor applications, such as generating heat and warmth in Rock, would not require electrically conductive filaments or fibers which may connect upon the application of any pressure, as such a benefit is not required. Therefore, it would have been obvious to one of ordinary skill in the conductive fabric art at the time the invention was made to form the conductive fabric of Swallow, and adjusting the segments to have a desired length, number, arrangement, or linear resistance to constitute a spiral or conductive path having the desired electrical resistance to generate heat or warmth, as taught by Rock, motivated by the desire of forming a conventional conductive fabric having conductive and insulating elements in a single

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layer, which is suitable for use in electric resistance heating/warming composite fabrics, suitable for the desired application.

Additionally, the limitations directed to the above-mentioned properties chosen so as to constitute one or more resultant conductive paths that conform to a desired geometry such that a desired resistance can be generated are alternatively interpreted as intended use limitations. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since Swallow teaches a substantially similar structure and composition as the claimed invention, the invention of Swallow appears capable of performing the claimed use.

Regarding claim 8, the prior art combination teaches that the fabric includes insulating warp fibers neighboring an electrically conductive filament or fiber in the warp, wherein the neighboring insulating warp fibers to an electrically conductive filament or fiber in the warp include a warp float over or under more than one weft yarn (Swallow, paragraphs 0008, 0011, 0012, Figures 3 and 9-12; *see additionally* paragraphs 0001-0007, 0009, 0010, 0013-0020).

Regarding claim 9, the prior art combination teaches that the fabric includes a warp and a weft and insulating weft fibers neighboring an electrical conductor in the weft, wherein the neighboring insulating weft fibers to an electrical conductor in the weft are subject to a weft float over or under more than one warp yarn (Swallow, paragraphs 0008, 0011, 0012, Figures 3 and 9-12; *see additionally* paragraphs 0001-0007, 0009, 0010, 0013-0020).

Regarding claim 20, the prior art combination appears to teach that the fabric provides an electrical heating element that exhibits a heterogeneous distribution of heated power dissipation along the resultant conductive path and/or across the fabric (Swallow, paragraphs 0076-0084, Figure 10). Alternatively, although the prior art combination does not disclose the claimed properties, the claimed properties are deemed to be inherent to, or naturally flow from, the structure in the prior art combination, since the prior art combination teaches an invention with a substantially similar structure and chemical composition as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicants to prove otherwise.

Regarding claims 28, 29, 37, and 38, it would have additionally been obvious to one of ordinary skill in the conductive fabric art at the time the invention was made to form the conductive fabric of Swallow, wherein the conductive path is arranged in series along a spiral path or in parallel, as taught by Rock, as it is within the level of ordinary skill to determine a suitable conductive path and heating pattern, based on the desired electrical conductivity and resistivity and heating pattern, suitable for the intended application. Additionally, it would have additionally been obvious to one of ordinary skill in the conductive fabric art at the time the invention was made to form the conductive fabric of Swallow, including a parallel structure, as taught by Rock, and having parallel sub-paths arranged in an interlaced comb shape, as it is within the level of ordinary skill to determine a suitable conductive path based on the desired heating pattern and end use, suitable for the intended application.

Regarding claim 31, the prior art combination teaches that the warp includes elongated insulating elements, and an elongated electrically conductive element neighboring the elongated

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insulating elements, wherein the insulating elements include a warp float over or under more than one of the elements in the weft (Swallow, paragraphs 0008, 0011, 0012, Figures 3 and 9-12; *see additionally* paragraphs 0001-0007, 0009, 0010, 0013-0020).

Regarding claim 32, the prior art combination teaches that the weft includes elongated insulating elements, and an elongated electrically conductive element neighboring the elongated insulating elements, wherein the insulating elements include a weft float over or under more than one of the elements in the warp (Swallow, paragraphs 0008, 0011, 0012, Figures 3 and 9-12; *see additionally* paragraphs 0001-0007, 0009, 0010, 0013-0020).

Regarding claim 34, the prior art combination teaches that the desired electrical characteristics include the electrical characteristic is at least electrical resistance (Swallow, paragraphs 0009, 0037).

Regarding claim 35, the prior art combination appears to teach that the desired electrical characteristics include a heterogeneous distribution of resistance along one or more of the conductive path and/or the entire fabric (Swallow, paragraphs 0009, 0015, 0037, Figures 10 and 12).

Regarding claim 38, the prior art combination teaches that the conductive path includes interdigitated subpaths nonconductively isolated from each other (Swallow, Figure 3; *see additionally* Id., Figures 4-12). It should be noted that Figure 3 of Swallow is identical to Applicants' Figure 1.

Regarding claims 41 and 42, Swallow teaches that the conductive path within the fabric includes multiple electrically conductive filaments or fibres or elements connected in parallel (*see for example* Swallow, paragraph 0035, Figure 10). Additionally, Rock teaches that the

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heating or warming of the circuit can be effected by arranging the conductive material in parallel to conductive buses (Rock, paragraph 0041). The prior art combination does not appear to teach the number of parallel filaments or fibres or elements being at least an order of magnitude greater than the number of electrically conductive filaments or fibres or elements defining terminal lengths of the conductive path. However, Swallow teaches that the electrical conductors are arranged to form an arbitrarily spaced grid (*see for example* Id., paragraph 0035). Additionally, it is unclear the metes and bounds and therefore the scope of the claims. Since Swallow teaches that the arrangement of the electrical conductors are variable, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the conductive textile of the prior art combination, and determining a suitable number of filaments or fibers or elements such that the number of filaments is at an order of magnitude greater than the number of filaments or fibers or elements defining terminal lengths of any path, as it is within the level of ordinary skill to determine a suitable number of electrical conductors based on, for example, the desired electrical conductivity and sensitivity of the conductive textile, and based on the desired terminal lengths suitable for the intended application.

8. Claims 15, 20, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swallow in view of Rock, as applied to claims 1, 8, 9, 20, 28-32, 34, 35, 37, 38, 41, and 42 above, and further in view of USPN 6,333,736 to Sandbach.

Regarding claims 15 and 33, Swallow does not appear to teach that the two or more contiguous segments are of two or more electrical conductors that exhibit differing linear resistivities. Since Swallow does not teach the specific electrical conductors suitable for the

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invention of Swallow, it would have been necessary and therefore obvious to look to the prior art for conventional electrical conductors. Sandbach teaches a substantially similar electrically conductive woven fabric as Swallow, comprising electrically conductive elements, relatively low resistance conductive elements and insulating elements, wherein the sizes of the conductive elements may be adjusted in comparison to the insulating elements (Sandbach, column 1 line 5 to column 2 line 7, column 2 lines 52-67, column 3 lines 1-30, column 6 lines 45-67, column 7 line 1 to column 8 line 13, column 9 line 57 to column 9 line 13). Sandbach teaches that the resistivity may be controlled by selecting an appropriate fiber type or adjusting the thickness of the fiber. Sandbach teaches that the inclusion of conductive and low resistance conductive elements makes it possible for a voltage indicative of position to be determined. It would have been obvious to one of ordinary skill in the electrically conductive textile art at the time the invention was made to form the electrically conductive textile of the prior art combination, wherein the conductive elements are of variable size and resistivity, as taught by Swallow and Sandbach, motivated by the desire of forming a conventional electrically conductive textile with conductive elements known in the art to be predictably suitable for use in electrically conductive textiles, and one of ordinary skill in the art would recognize that varying the resistivities in the textile would similarly predictably vary the electrical properties of the textile and within the textile, based on the desired application.

Regarding claims 20 and 35, the prior art combination appears to teach that the electrical characteristic is a heterogeneous distribution of resistance along the resultant conductive path and/or across the fabric and that the fabric provides an electrical heating element that exhibits a heterogeneous distribution of heated power dissipation along the resultant conductive path and/or

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across the fabric. Additionally, the prior art combination teaches an electrically conductive woven fabric comprising electrically conductive elements, relatively low resistance conductive elements and insulating elements, wherein the conductors exhibit differing linear resistivities. Although the prior art combination does not specifically disclose the claimed properties, the claimed properties are deemed to naturally flow from the structure in the prior art combination, since prior art combination teaches an invention with a substantially similar structure and chemical composition as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicants to prove otherwise.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swallow in view of Rock, as applied to claims 1, 8, 9, 20, 28-32, 34, 35, 37, 38, 41, and 42, or alternatively over Swallow in view of Rock and Sandbach, as applied to claims 15, 20, 33, and 35 above, in view of USPN 5,422,462 to Kishimoto.

Regarding claim 20, Swallow appears to teach that the fabric provides an electrical heating element that exhibits a heterogeneous distribution of heated power dissipation along the resultant conductive path and/or across the fabric (Swallow, paragraphs 0076-0084, Figure 10). Additionally, Swallow teaches that the conductive textile can be used as a pressure sensor or switch or other conductive device within a single layer of fabric.

As additional evidence, Kishimoto teaches a woven conductive fabric which can be used to provide a significantly safe and bendable heating sheet, comprising conductive yarns and insulating yarns as warps and wefts (Kishimoto, column 1 lines 5-8, column 2 lines 16-45, column 2 lines 64 and 65, claim 1). Kishimoto teaches that an electrode is connected to each end

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of the conductive yarn, such that each yarn is connected in parallel condition to each electrode (Id., column 3 lines 30-61). It would have been obvious to one of ordinary skill in the conductive fabric art at the time the invention was made to form the conductive fabric of the prior art combination, wherein the fabric is provided as an electrical heating element, as taught by Kishimoto, motivated by the desire of forming a conventional conductive fabric having a configuration known in the art as being predictably suitable for forming similar conductive fabrics having an electrical heating element.

### *Response to Arguments*

#### 10. **Applicants' response to the 35 USC 112, first paragraph rejection**

Applicants' arguments filed January 9, 2012, have been fully considered but they are not persuasive. Applicants argue that the specification clearly notes the "switchable" crossovers as being an option, and none of the figures illustrate the use of "switchable crossovers," which provides a clear basis for the claimed subject matter. Examiner respectfully disagrees. As set forth above, any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. Applicants' specification, as originally filed, does not provide support for the claimed limitations.

#### 11. **Applicants' response to the 35 USC 103(a) rejections**

Applicants' arguments with respect to the rejection based on Swallow alone have been considered but are moot because the arguments do not apply to any of the references being used



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in the current rejection. However, to the extent that Applicants' arguments still apply, they are addressed below.

Applicants argue that Swallow does not describe a fabric solely having permanently connected and unconnected crossovers as claimed. Examiner respectfully disagrees. As set forth above, it is unclear exactly what structure is claimed. Additionally, Swallow teaches at least one instance of a crossover point as claimed (*see for example* Swallow, paragraphs 0073, 0074, Figure 10).

Applicants argue that the present applicants, which are the same as the prior applications, only later realized the possibility of modifying the prior fabrics to permanently fix crossovers into conductive or insulating relationship. Examiner respectfully disagrees. Although Applicants argue that the presently claimed invention is novel or different over the prior invention, it should be noted that the "hypothetical person having ordinary skill in the art" to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art. To reach a proper determination under 35 U.S.C. 103, Examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, Examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person.

The phrase "at the time the invention was made" does not refer to the time period when the prior art invention was made, but at the time just before the claimed invention presently examined was made. The person of ordinary skill in the art at the time the invention was made is

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not the inventor in the prior art, but the person of ordinary skill in the art when the claimed invention was unknown and just before it was made. As set forth above, the rejection is based on Swallow in view of Rock, which appears to render obvious the claimed invention

Applicants argue that modifying Swallow to generate a circuit/fabric would be wholly contrary to the purposes of Swallow. Examiner respectfully disagrees. Swallow appears to contemplate the use of the conductive fabric in circuit boards (Swallow, paragraph 0074).

Applicants argue that Swallow does not disclose the alleged interdigitated conductive paths. Examiner respectfully disagrees. As set forth above, Applicants' specification does not appear to disclose the claimed limitation. Additionally, Applicants' specification appears to disclose interdigitated paths generally as shown in Figure 1. As set forth above, Figure 3 of Swallow is identical to Applicants' Figure 1. Therefore, Swallow appears to teach the claimed interdigitated paths.

Applicants argue that if one did not want switchability, one would not look to Swallow in the first place. Examiner respectfully disagrees. Swallow teaches and suggests that the invention of Swallow can provide a conductive textile for a pressure sensor or switch or other conductive device within a single layer of fabric, such as a circuit, as the objective of the invention is to incorporate multiple conductive and insulating properties into a single fabric sheet. Additionally, Swallow teaches that the electrical conductors have an electrical resistance property.

Rock teaches an electric resistance heating/warming composite fabric article comprising conductive yarn mounted upon a layer of fabric. Rock teaches that the number of conductive filaments, and where the filaments are located, are dependent on the end use requirements. Rock

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teaches that the heating or warming of the circuit can be effected by concentrating a relatively greater length of conductive material in a tortuous, zigzag, and/or interlocking spiral pattern, or arranging the conductive material in parallel to conductive buses.

It is reasonable for one of ordinary skill in the art to expect that various conductive textiles would comprise various configurations taking advantage of the structure of Swallow. For example, pressure sensors would incorporate electrically conductive filaments or fibers which may connect upon the application of the desired pressure, whereas conductive devices not used in pressure sensor applications, such as generating heat and warmth in Rock, would not require electrically conductive filaments or fibers which may connect upon the application of any pressure, as such a benefit is not required. Therefore, it would have been obvious to one of ordinary skill in the conductive fabric art at the time the invention was made to form the conductive fabric of Swallow, and adjusting the segments to have a desired length, number, arrangement, or linear resistance to constitute a spiral or conductive path having the desired electrical resistance to generate heat or warmth, as taught by Rock, motivated by the desire of forming a conventional conductive fabric having conductive and insulating elements in a single layer, which is suitable for use in electric resistance heating/warming composite fabrics, suitable for the desired application.

Applicants argue that modifying Rock with Swallow would immensely increase Rock's cost and complexity. Examiner respectfully disagrees. Cost and complexity are not relied on in modifying Swallow with the teachings of Rock. Additionally, Swallow teaches a conductive material comprising electrical resistance wherein the objective of the invention is to incorporate multiple conductive and insulating properties into a single fabric sheet. The rejection relies on

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Rock modifying Swallow, and not vice versa, to show that the invention of Swallow can be modified to generate heat or warmth, in the single fabric sheet as taught by Swallow.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Chriss can be reached on (571) 272-7783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Peter Y Choi/  
Primary Examiner, Art Unit 1786